

SHSP Action Plan Development Intersection EA Team



January 25, 2018

Agenda

- Welcome and Introductions
- Review Action Plans Developed by Working Groups
- Discuss Remaining Countermeasures Identified for Action Planning
- Next Steps



STRATEGIES: INTERSECTION SAFETY EMPHASIS AREA

Strategy #1

Improve data systems for identifying specific intersections and intersection types at high probability for serious injury crashes.

Strategy #2

Consider alternative design strategies for improving intersection safety.

Strategy #3

Improve pedestrian safety at intersections with high probability of crashes.

Strategy #4

Increase driver awareness of intersections.

Strategy #5

Develop educational campaigns incorporating data analysis to improve intersection safety.

Strategy #6

Reduce red light running.

NUMBER	COUNTERMEASURE for ACTION PLANNING
1a	<p>Create a statewide intersection safety and roadway elements database. (Incorporate Model Inventory of Roadway Elements format, create a standardized data structure to support GIS applications, create an app for data collection, develop partnerships between TxDOT, MPOs, and local agencies to populate the database, and develop and implement an intersection identifier system for posting at intersections).</p>
2a	<p>Construct roundabouts and create an outreach program to educate the public and public officials about roundabout advantages and safety benefits.</p>
2c	<p>Encourage use of the Intersection Control Evaluation process for use in project development by TxDOT and local agencies—develop case studies, provide training, and conduct outreach.</p>
3b	<p>Install low to medium cost improvements to increase pedestrian safety:</p> <p>Eliminate free flow turn lanes or convert them to angled turn lanes that require stopping/yielding, add turn islands and median islands and curb bulb outs, convert permissive only or protected permissive phasing to protected only (when pedestrian is present or during active times of day), provide enhanced measures—rectangular rapid flash beacon, pedestrian hybrid beacon, lighting, etc. at uncontrolled high risk locations, and pedestrian islands.</p> <p>At targeted intersections: Prohibit right on red and permissive left turns at high probability locations, install/improve pedestrian signals, pedestrian crosswalks, lighting, and/or high friction surface treatment on intersection approaches, and ensure pedestrian signals, push buttons, crosswalk markings, etc. meet current requirements or upgrade to current requirements, including signal timing.</p>
4b	<p>Implement proven, low cost engineering countermeasures in a systemic manner: modify operations, add or enhance signs, and add or enhance physical conditions. (Install driver speed feedback signs in advance of intersections.)</p> <p>Implement current Texas Intersection Safety Implementation Plan to prepare for the next iteration of the HSIP.</p>
5a	<p>Publicize high crash locations and point out the contributing crash factors (e.g., red light running, speeding impaired driving, texting, phone use).</p>
6a	<p>Use targeted enforcement at high incident locations. Install red light indicator (in most cases, white) lights to inform law enforcement of red signal onset.</p>
6e	<p>Improve traffic signal timing and interconnect signals to improve efficient traffic flow and encourage a safe travel speed.</p>

Strategy #1	Improve data systems for identifying specific intersections and intersection types at high probability for serious injury crashes
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Countermeasures and Programs:

1a	Create a statewide intersection safety and roadway elements database. (Incorporate Model Inventory of Roadway Elements format, create a standardized data structure to support GIS applications, create an app for data collection, develop partnerships between TxDOT, MPOs, and local agencies to populate the database, and develop and implement an intersection identifier system for posting at intersections).
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Lead Organization: TxDOT

Effectiveness: ***

Cost of implementation: \$\$\$

Time to implementation: medium

- TSIS document identifies a cost of \$4 million between now and 9/30/2026
- Likely long term based on the schedule in the TSIS document

Strategy #1	Improve data systems for identifying specific intersections and intersection types at high probability for serious injury crashes
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Countermeasures and Programs:

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<u>Steps for implementation:</u> <ul style="list-style-type: none">• <u>Step 1</u>: Need executive director policy mandate to require start of data collection• <u>Step 2</u>: Soliciting input from stakeholders to determine what data is wanted; set up data platform (how to cities provide data); establish method for exchange• <u>Step 3</u>: Establish data platform and modify existing app (Road Runner) based on MIRE• <u>Step 4</u>: Collect/integrate data• <u>Step 5</u>: Maintain the database	<u>Based on TSIS, this could like read:</u> <ul style="list-style-type: none">• <u>Step 1</u>: Develop ramp data and edit GIS line work to ensure the roadway network is topologically correct.• <u>Step 2</u>: Conduct GRID software enhancement project to incorporate intersection/interchange inventory.• <u>Step 3</u>: Develop algorithms to generate intersections and derive descriptors and location identifiers such that all MIRE FDEs are fully incorporated into our Roadway Inventory system.
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Strategy #1	Improve data systems for identifying specific intersections and intersection types at high probability for serious injury crashes
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Countermeasures and Programs:

1a	Create a statewide intersection safety and roadway elements database. (Incorporate Model Inventory of Roadway Elements format, create a standardized data structure to support GIS applications, create an app for data collection, develop partnerships between TxDOT, MPOs, and local agencies to populate the database, and develop and implement an intersection identifier system for posting at intersections).
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Barriers:

- Getting policy approved
- Cooperation from stakeholders
- Budget
- Realistic vs. administration time frame
- Data integration
- Maintaining the data “properly”
- Training data users

Other notes: for more information, see the Texas Traffic Records Coordinating Committee (TRCC) Strategic Plan section 6 – MIRE Fundamental Data Element 9/30/2026 Implementation Plan.

Strategy #2	Improve data systems for identifying specific intersections and intersection types at high probability for serious injury crashes
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Countermeasures and Programs:

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| 2a | Construct roundabouts and create an outreach program to educate the public and public officials about roundabout advantages and safety benefits. |
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Steps for implementation:

1. Use HSIP program to implement roundabouts
 - a. Dedicate portion of HSIP for roundabout implementation
 - b. Use crash modifications factors from other states/national studies until Texas can develop their own factors
2. Provide designers/planners with education on roundabout application and design
 - a. Make agencies aware of free FHWA peer review program
 - b. Fund roundabout design/application training through webinars – Fort Worth District, Dallas District and Atlanta District have received this training. Expand through TEEEX or other methods.
 - c. Provide training at Short Course?
3. TxDOT adoption/implementation of ICE (Intersection Control Evaluation) process into intersection project planning. The process can look at all innovative intersection types and not just roundabouts.
4. Review if CR3 changes are needed to accurately capture crashes occurring in roundabouts within the state. Result should help with development of factors and statewide data collection

Strategy #2	Improve data systems for identifying specific intersections and intersection types at high probability for serious injury crashes
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Countermeasures and Programs:

2a Construct roundabouts and create an outreach program to educate the public and public officials about roundabout advantages and safety benefits.

5. Fund research into construction methods to reduce cost of multi-lane roundabout retrofits. This seems to be a hurdle in urban areas where multi-lanes are more likely to be needed and costly to remove/replace large amounts of concrete. Find ways to use overlays of existing concrete to reduce up front capital cost.
6. Provide documentation of how roundabouts can result in wide nodes narrow roads concept. For example, implementation of roundabouts at interchanges may defer or eliminate need for bridge widenings. Implementation of roundabouts could also defer or eliminate need to widen roadway links between intersections.
7. Support pool funding of research on whether or not to stripe multi-lane roundabouts
8. Insure roundabout information included in the Texas driver's manual is up to date and covers both single lane and multi-lane roundabouts
9. Include roundabout questions on driver's license exam

Strategy #2	Improve data systems for identifying specific intersections and intersection types at high probability for serious injury crashes
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Countermeasures and Programs:

2a	Construct roundabouts and create an outreach program to educate the public and public officials about roundabout advantages and safety benefits.
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10. Provide driver training facilities and online programs with roundabout information
11. Have TxDOT create a PSA on roundabouts for use across the state.
12. Document successful roundabout implementations across so agencies can share with their local appointed and elected officials

Countermeasures and Programs:

2c	Encourage use of the Intersection Control Evaluation process (ICE) for use in project development by TxDOT and local agencies
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Facilitated Discussion Group Results:

Step 1: Identify stakeholders (Lead organization: TxDOT)

Step 2: Draft policy based on best practices;
Current ICE appendix to design guide doesn't contain policy; Standard intersection design doesn't apply in certain cases
(Lead organization: research agency)

Step 3: Revise based on stakeholder input
(Lead organization: research agency)

Step 4: Train & promote; Identify expert contact
(Lead organization: TxDOT; research agency)

Countermeasures and Programs:

2c	Encourage use of the Intersection Control Evaluation process (ICE) for use in project development by TxDOT and local agencies
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Effectiveness: ***

- Context sensitive – not just roundabouts
- Already used by several states
- TxDOT sticking to tried and true

Cost of implementation: \$\$ (staff and outreach)

Time to implementation: medium

- Some of the work already done
- EDC 2 has already done and years of leg work

Barriers:

- Institutionalized inertia

Strategy #3	Improve pedestrian safety at intersections with high probability of crashes
Countermeasures and Programs:	
3b	<p>Install low to medium cost improvements to increase pedestrian safety:</p> <p>Eliminate free flow turn lanes or convert them to angled turn lanes that require stopping/yielding, add turn islands and median islands and curb bulb outs, convert permissive only or protected permissive phasing to protected only (when pedestrian is present or during active times of day), provide enhanced measures—rectangular rapid flash beacon, pedestrian hybrid beacon, lighting, etc. at uncontrolled high risk locations, and pedestrian islands.</p> <p>At targeted intersections: Prohibit right on red and permissive left turns at high probability locations, install/improve pedestrian signals, pedestrian crosswalks, lighting, and/or high friction surface treatment on intersection approaches, and ensure pedestrian signals, push buttons, crosswalk markings, etc. meet current requirements or upgrade to current requirements, including signal timing.</p>

Step 1: Identify targeted intersections through crash analysis and public input. Identify high-risk intersection characteristic. Prioritize projects. (Lead organization: TxDOT, cities, etc.)

Step 2: Create a toolbox of engineering solutions. Pilot test.
(Lead organization: implementing agencies/MPOs/research institutions)

Step 3: Identify specific countermeasures for each intersection.
(Lead organization: implementing agencies)

Step 4: Identify funding sources and costs to implement.
(Lead organization: implementing agencies)

Step 5: Implement. Educate. Evaluate outcomes.
(Lead organization: implementing agencies)

Strategy #3	Improve pedestrian safety at intersections with high probability of crashes
Countermeasures and Programs:	
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Effectiveness: **

Cost of implementation: \$\$

Time to implementation: short

Barriers:

- Public perception
- Funding
- Effect on LOS
- Data limitations

Countermeasures and Programs:

4b

Implement proven, low cost engineering countermeasures in a systemic manner: modify operations, add or enhance signs, and add or enhance physical conditions. (Install driver speed feedback signs in advance of intersections.) Implement current Texas Intersection Safety Implementation Plan to prepare for the next iteration of the HSIP.

Step 1: Evaluation/ Study

Step 2: Design/Cost

Step 3: Implement

Step 4: After study

Effectiveness: ***

Cost to implement: \$\$

Time to implement: short

Barriers:

- Funding
- Local opposition
- Construction for pavement modifications

Additional Notes (modify):

- Visibility
- Add/update features (turn lane channelization medians)
- Signs (add, update, size, relocate, LED, advance warning)
- PM to guide
- Illumination
- Pavement – HFST
- Rural – RS
- Flashing beacons

Strategy #5	Develop educational campaigns incorporating data analysis to improve intersection safety
Countermeasures and Programs:	
5a	Publicize high crash locations and point out the contributing crash factors, e.g., red light running, speeding impaired driving, texting, phone use, etc.

Facilitated Discussion Group Results:

Step 1: Data gathering/ analysis; location identification
(Lead organization: state or city/ road owner)

Step 2: Obtain interagency approvals; obtain necessary public outreach approvals (council, MPO, Division approval, coalition); use existing program guidelines
(Lead organization: road owner)

Step 3: Implementation: pamphlets; news/radio spots; internet/social media; physical signs (aluminum/DMS)
(Lead organization: road owner)

Step 4: Efficacy evaluation – analyze data post implementation
(Lead organization: road user)

Strategy #5	Develop educational campaigns incorporating data analysis to improve intersection safety
Countermeasures and Programs:	
5a	Publicize high crash locations and point out the contributing crash factors, e.g., red light running, speeding impaired driving, texting, phone use, etc.

Effectiveness: **

- Based on prior publicity of top crash intersections in news articles
- Prior use of large drunk driving signs on high risk corridors. It may translate to risky intersections
- Local DMS signs may improve driver behavior

Cost of implementation: \$

- Lower cost than rebuilding each intersection
- Publicity through multiple medium
 - Internet
 - Radio/TV
 - Signs – static/DMS
 - Use the existing program guidelines

Time to implementation: short

- Data analysis
- Sign fabrication and installation on state or city right of way

Barriers:

- Consensus between organizations
- This may push the outreach from short term to medium term
- Smaller agencies may have difficulty obtaining data analysis
- Incorrect data (few outliers; lat/long)
- Lack of stakeholder buy-in

Strategy #6	Reduce red light running
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Countermeasures and Programs:

6a	Use targeted enforcement at high incident locations. Install red light indicator (in most cases, white) lights to inform law enforcement of red signal onset.
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Facilitated Discussion Group Results:

Step 1:

Step 2:

Step 3:

Step 4:

Step 5:

Effectiveness:

Cost to implement:

Time to implement:

Barriers :

Countermeasures and Programs:

6e	Improve traffic signal timing to improve efficient traffic flow
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Facilitated Discussion Group Results:

Step 1: Traffic study (pilot)

Step 2: Equipment

Step 3: Program

Step 4: Implement

Step 5: Evaluation

Effectiveness: **

- Progression
- Dilemma zone
- Controller update

Cost to implement: \$

Time to implement: short

Barriers :

- Public
- Funding
- City/county issues

Wrap Up

- Review plans for next meeting
- Questions
- Comments

Thanks very much!